



1785

# The University of Georgia

Spring 2012

Interdisciplinary Toxicology Program  
**DIGEST**



**INTERDISCIPLINARY TOXICOLOGY PROGRAM  
SPRING RETREAT 2012**

[www.toxicology.uga.edu](http://www.toxicology.uga.edu)

## The Interdisciplinary Toxicology Program

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Green St.  
Athens, GA 30602  
www.toxicology.uga.org  
706-583-0058  
Brian Cummings, Director

### Executive Committee

Brian Cummings  
Jim Bruckner  
Nick Filipov  
Ron Riley  
Raymond Noblet  
Marsha Black

### Admissions Committee

Mary Alice Smith  
Qingguo Huang  
J.S. Wang  
Robert Bringolf  
Ralph Tripp

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Dear Colleagues,

I would like to thank faculty and students for their dedication to the ITP, and Toxicology in general, over the last year. ITP students continue to excel in their research and their studies, based on their presentations at regional, nation and international meetings, and by earning awards for their research. Several of our faculty continue to be successful in publishing in highly regarded journals and in obtaining grants from highly respected sources, such as the National Institutes of Health, the National Science Foundation and the Center for Disease Control. Our faculty and students also continue to take leadership roles in regional and national toxicology centered scientific organizations.

True to our interdisciplinary nature the ITP provided stipend support for 21 students, representing 5 different Colleges at UGA and 9 different departments. We also had several new faculty members join our ranks from several different colleges, but unfortunately lost a dear friend this year, Dr. Randy Manning, a longtime supporter of ITP. He will be missed.

The upcoming academic year will see a significant milestone for ITP. In 2013 we expect to graduate our 100th student. This is quite an accomplishment, one that all ITP faculty, past and present, can take pride in. Thanks to the tireless efforts of our staff (particularly Joanne Mauro), and our faculty, we have been able to keep track of most of our alumni, which are listed within this newsletter. If you are an alumni and don't see your name, let us know. If you are faculty and don't see your student, let us know.

One goal for the ITP in the 2012 to 2013 year is to increase our Foundation Funds. Foundation Funds allow both faculty and students to invite and support national and internationally known Toxicologists for seminars, and support programs that enhance ITP faculty and student experiences. Donations are tax-deductible and information on how to give can be found in this newsletter and at <http://www.toxicology.uga.edu/contact.asp>

In closing, thank you all for helping make this another successful year in ITP and I wish all of our students, faculty and alumni success in the upcoming year.

Dr. Brian S. Cummings  
Director, ITP  
UGA





Kwaku Agyekum



Manoj Amaraneni



Chen Chen



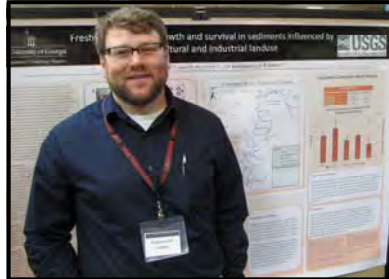
Adwoa Commodore



John Finger



Cory Gresham



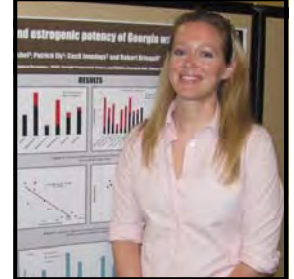
Peter Hazelton



Joe Iburg



Minsu Kang



Kristen Kellock



Rong Li



Zhoumeng Lin



Lisa Luo



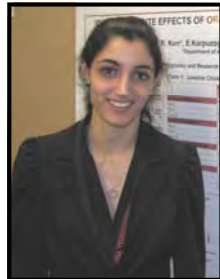
Maggie Liu



Madhusudhan M. Keralapurath



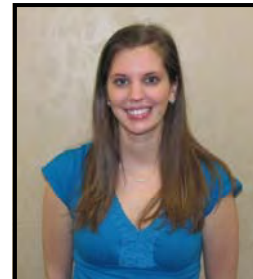
Dean Meyer



Mandana Nisanian



Guoqing Gian



Emily Roberts



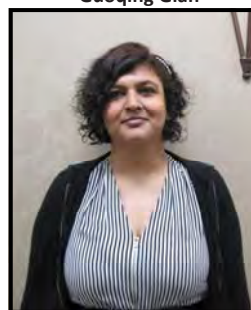
Natalie Scholpa



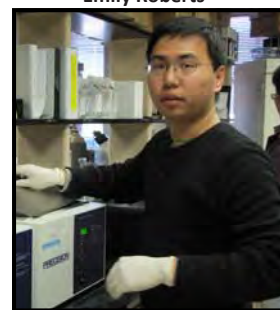
Pankaj Sethi



Chi-Yen Tseng



Rahat Desai-Wadhwa



Xian Wu



Shuo Xiao



Fei Zhao

# 2011 - 2012 ITP STUDENTS

# IITP FACULTY

## **COLLEGE OF AGRICULTURE AND ENVIRONMENTAL SCIENCE**

- Qingguo (Jack) Huang, Crop & Soil Sciences
- Raymond Noblet, Entomology Department Head
- Steve Stice, Regenerative Bioscience Center, Director

## **COLLEGE OF PHARMACY**

- Robert Arnold, Pharmaceutical & Biomedical Sciences
- James Bruckner, Pharmaceutical & Biomedical Sciences
- Brian S. Cummings, Pharmaceutical & Biomedical Sciences

## **COLLEGE OF PUBLIC HEALTH**

- Marsha Black, Environmental Health Science
- Cham Dallas, Health and Policy Management
- Travis Glenn, Environmental Health Science
- Luke Naeher, Environmental Health Science
- Mary Alice Smith, Environmental Health Science
- Jia-Sheng Wang, Environmental Health Science Department Head
  - Phillip Williams, Dean

## **ODUM SCHOOL OF ECOLOGY**

- Richard Shefferson, Plant Biology

## **VETERINARY MEDICINE**

- Gaylen Edwards, Physiology & Pharmacology Department Head
  - Nikolay Filipov, Physiology & Pharmacology
  - Robert Gogal, Immunology & Immunotoxicology
    - Keith Harris, Pathology Department Head
- Steve Holladay, Veterinary Biosciences & Diagnostic Imaging Department Head
  - S. Mark Tompkins, Infectious Diseases
    - Ralph Tripp, Infectious Diseases
  - Maria M. Viveiros, Physiology & Pharmacology
    - John J. Wagner, Physiology & Pharmacology
    - Xiaoqin Ye, Physiology & Pharmacology

## **WARNELL SCHOOL OF FORESTRY & NATURAL RESOURCES**

- Robert Bringolf, Warnell School of Forestry & Natural Resources
- Richard Winn, Warnell School of Forestry & Natural Resources

## **USDA & EPA**

- Ronald T. Riley, Toxicology & Mycotoxin Research Unit, USDA
- Kenneth A. Voss, Toxicology & Mycotoxin Research Unit, USDA

Other “Affiliated” faculty members can be viewed at [www.toxicology.uga/faculty.asp](http://www.toxicology.uga/faculty.asp)

# UGATOX



## **2011-2012 UGATOX OFFICERS.**

Pictured, L to R: **KWAKU AGYEKUM, PRESIDENT; ADWOA AGYEPONG, VICE PRESIDENT; GUOQING QIAN, SECRETARY; SHUO XIAO, TREASURER.**

Dear UGATOX community, this has been a great and memorable year. In the Fall we had Dr. Elizabeth Irvin-Barnwell, CDC-ATSDR and ITP alumnus to come speak with us for the semester's Roundtable Event. This spring, we had Dr. William Mundy, EPA RTP, NC come and present exciting information on graduating and the available Toxicology professional direction out there. This semester marks the end of our 2nd year in existence and we definitely could not have done it without the help and dedication from Joanne Mauro and our faculty advisers. We welcome the new UGATOX Officers: President: Shuo Xiao; Vice President: Kristen Kellock; Secretary: Rahat Desai; Treasurer: Fei Zhao. They will take office this summer and we look forward to 2012 - 2013 to be even better! Remember to do your very best in the field of Toxicology that you are pursuing because we are the next generation of Toxicologists!

# EXECUTIVE COMMITTEE



Dr. Nick Filipov; Dr. Julie Coffield; Dr. Brian Cummings; Dr. Marsha Black, Dr. Jim Bruckner; Dr. Ray Noblet

# APPRECIATION EVENT



An Appreciation Event was held in December 2012 to acknowledge contributions of the founders of UGA's Interdisciplinary Toxicology Program. Pictured L to R: Walt Sanders, Nick Filipov, Bill Norred, Tim Collette, Ken Voss, Ron Riley, Randy Manning, Jim Bruckner, Julie Coffield, Marsha Black, Cham Dallas

# TOXICOLOGY 2012 SEMINARS



Dr. Irvin discusses toxicology at the CDC with UGATOX



Dr. Mundy discusses chemical testing with UGATOX .



Dr. Riley hosts a UGATOX Roundtable

The UGATOX Seminar Series allows students and faculty an opportunity to meet in a casual setting with a variety of accomplished researchers. Seminar topics capture important current and emerging issues in toxicology.

## THE 2011 - 2012 UGATOX SEMINARS

- /// **DR. WILLIAM MUNDY, EPA, RTC, NC** “How Do We Test Chemicals for Developmental Neurotoxicity? An In Vitro Approach using High Content Imaging.”
- /// **DR. ELIZABETH IRVIN-BARNWELL, ATSDR/CDC** “From UGA ITP student to Principal Investigator for the PV (Polycythemia Vera) Cluster
- /// **DR. RON RILEY, USDA** Fall 2011 UGATOX Roundtable Event

Dr. Wagner, Dr. Wang and Dr. Bringolf add up the poster scores at the Spring Retreat.





**Dr. Randall Oliver Manning**  
**October 12 1956 - January 16th 2012**

After a six-year struggle with cancer, Dr. Randall Oliver Manning died peacefully at his home on Monday, January 16th surrounded by his wife, family, and beloved dog. Randy was born on October 12, 1956 in Dublin, Ga. He attended Dublin High School and graduated with a bachelors, masters, and doctorate from the College of Agriculture at the University of Georgia. He was a postdoctoral associate and an assistant research toxicologist in the Department of Pharmacology and Toxicology, College of Pharmacy at the University of Georgia. In 1990, he became the state toxicologist for the Environmental Protection Division at the Georgia Department of Natural Resources. While serving in this position, he dealt with state problems with chemical contaminants of air and water. Randy worked well with local people, who were concerned about pollution. He was certified as a Diplomat of the American Board of Toxicology. He was also an adjunct professor for the Rollins School of Public Health at Emory University and the Interdisciplinary Toxicology Program at the University of Georgia. He lectured in two graduate courses at the University of Georgia for 13 years. He was a full member of the Society of Toxicology and the Society of Toxicology and Chemistry. He was a member and served as Chapter President of the Southeastern Regional Chapter of the Society of Toxicology. He served on the Board of Directors with the Toxicology Excellence for Risk Assessment and was a consultant to the U.S. Environmental Protection Agency and the ATSDR/Centers for Disease Control. Randy was a great friend to the ITP and he will be missed.



# NEW FACULTY

## **DR. S. MARK TOMPKINS**

A major area of research in the lab is a collaborative effort with Dr. Ralph Tripp (Infectious Diseases) and focuses on genome screening for host genes that influence virus replication. There are three major objectives of this work: 1) Identification of cellular genes and pathways that can be deleted, silenced, or blocked to increase virus or antigen production for enhanced vaccine production; 2) Identification of cellular genes and pathways that can be silenced or blocked to reduce virus production or virulence for antiviral drug targeting; and 3) Further understanding of the virus-host interactions. These studies involve assessment of toxicity resulting from gene silencing and host pathway blockade, as well as assessment of novel antiviral drugs. A second,



unrelated area of research is exploration of the innate immune responses in Crocodylians. This is a collaborative effort with Dr. Travis Glenn, (Environmental Health Science), another member of the Interdisciplinary Toxicology Program, with the goals of understanding the susceptibility of this Order, the closest living relatives of birds, to viral infections. This work enables understanding of crocodiles in addition to a better understanding of viral infections in avian species. This work also provides opportunities to explore the effect of environmental pollutants (e.g. heavy metals) on alligator innate immune function.

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## **DR. RICHARD SHEFFERSON**



I am an evolutionary ecologist working on life history evolution and the evolution of symbioses in plants and fungi. I am particularly interested in the evolution of the mycorrhiza, an interaction in which plants and fungi mutually exchange vital nutrients. The mycorrhiza confers plants with an ability to live in fairly toxic environments, seemingly because of adaptations that allow the fungus to sequester heavy metals and other substances. I am now assessing the microevolutionary context of the mycorrhiza in orchid species that colonize mine tailings hills in eastern and central Europe, with the aim of assessing what traits have led to these species being able to thrive in heavy metal-rich, nutrient-poor environments. I hope to apply these findings to develop recommendations for bioremediation of mines and mine tailings.

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*Excellence in graduate education is fostered by offering a dynamic, forwardlooking, interdisciplinary curriculum taught by a nationally and internationally respected faculty. A stimulating and challenging learning environment provides inspiration and encouragement for achieving the highest level of student success.*

***We welcome these new faculty members!***

# FACULTY RESEARCH HIGHLIGHTS

## DR. J.S. WANG



Dr. Jia-Sheng Wang, an ITP faculty member since 2008, serves as professor and head for the Department of Environmental Health Science, College of Public Health, The University of Georgia. Dr. Wang's research interests cover a very broad spectrum of interdisciplinary fields, including biomarker development and applications; chemical and viral carcinogenesis; molecular epidemiology and prevention of human esophageal cancer and hepatocellular carcinoma; interactions between environmental toxicants, especially for food-borne toxicants, genetic susceptibility, and human infectious diseases, HBV, HIV, and tuberculosis. His highlighted research achievements include development and validation of aflatoxins and fumonisin biomarkers in high-risk human populations. He is a well known expert for translational research with natural products on prevention/intervention of human acute and chronic diseases with environmental linkage. Dr. Wang's research group also studies emerging environmental issues, such as global warming, climate changes, population growth, urbanization, and human health effects in developing nations. His oversee research sites include Burkina Faso, China, Ghana, Haiti, Malaysia, and Uganda.

## DR. JIM BRUCKNER

Dr. Bruckner's main focus of ongoing research is on basic toxicology and pharmacokinetic questions that impact assessments of risks of chemicals to human health. The Bruckner lab is currently focused on volatile organic chemicals (VOCs) and pesticides. High lifetime doses of VOCs cause cancer in mice and rats, but it is unclear whether low environmental exposures pose a cancer risk to humans. Animal studies are being conducted to determine the effectiveness of detoxification presystemic elimination and other protective mechanisms against trace-level exposures. Studies are also



conducted to learn whether drug-chemical interactions are of consequence under these conditions. Work is underway to develop physiologically-based pharmacokinetic models for predicting risks of pyrethroid pesticides to children's health. Grants from the EPA, DOE and CDC support these activities.

# FACULTY PUBLICATIONS

Please visit our website for a complete list of faculty publications during the last year.  
<http://www.toxicology.uga.edu/2011%20Faculty%20Publications.pdf>

# FACULTY GRANTS

**JAMES V. BRUCKNER, DEPT. PHARMACEUTICAL & BIOMEDICAL SCIENCES** -11/01/11 – 10/31/13. Council for the Advancement of Pyrethroid Human Risk Assessment. “Characterization of Potential Age-Related Differences in the Pharmacokinetics of Pyrethroids: In Vivo, In Situ and In Vitro Studies in Rats and Human Systems.”

**BRIAN S. CUMMINGS, DEPT. OF PHARMACEUTICAL AND BIOMEDICAL SCIENCES** - sPLA2 Selective Degradation of Nanoparticles (1R21EB008153-1A). PI. PAR-07-034, Nanoscience and Nanotechnology in Biology and Medicine. 07/2009-06/2012 Characterization of Potential Age-Related Differences in the Pharmacokinetics of Pyrethroids: In Vivo, In Situ and In Vitro Studies in Rats and Human Systems. PI: Jim Bruckner; CO-I.

-Toxicity of Ligand and Metal-Ligand-Based Anti-Cancer Agents. PI. Effort. Contract: Chevron Philips. April 2012 to February 2013.

**TRAVIS GLENN, DEPT. OF ENVIRONMENTAL HEALTH SCIENCE** - National Science Foundation. S. Hubbell, B. Faircloth, G. Gilbert, M. Saunders, and T. Glenn. 03/2012 – 02/2017. Role – Co-PI (PI of UGA subaward) Dimensions: “Testing the potential of pathogenic fungi to control the diversity, distribution, and abundance of tree species in a neotropical forest community.”

- Smithsonian Institution Grand Challenge Awards. M. Braun, K. Wurdack, W. Weislo, J. Maldonado, K. Helgen, S. Brady; M. Cummings, T. Glenn, B. Faircloth, R. Brumfield, E. Braun, J. McCormack, N. Crawford, N. White. 01/2012 – 06/2013. “Building the Framework of Biodiversity Science: Next Generation Phylogenomics.”

- National Science Foundation (OISE-0730218) R. Mauricio, K. Myhre, T. Glenn, R. Walcott. Role – Co-PI. 09/2007 – 08/2012. PIRE: “Genetics of invasive species exchanged between the Southeastern U.S. and China, Taiwan & Hong Kong.”

- Smithsonian Next Generation Sequencing Small Grants Program. M. Braun, N. White, T. Glenn, B. Faircloth, R. Brumfield, E. Braun, J. McCormack, N. Crawford. 10/2011 – 06/2013. “Phylogenetic utility of ultra-conserved elements for the avian tree of life.”

**SAYEED HASSAN, DEPT. OF CROP AND SOIL SCIENCES** - 2007-2012. US EPA. M. Cabrera, B. Fairchild, P. Hartel, S. Hassan, D. Kissel, D. Radcliff, W. Vencill and D. Franklin. “Fate of hormones in waste from concentrated broiler feeding operations.”

- 2010 - 2014 US Fish and Wildlife Service, Lasier PJ, Bringolf RB, Hassan SM. “Agricultural Chemicals and Stormwater Runoff: Potential Impacts on Rare and Threatened Aquatic Species in the Upper Conasauga River.”

**QINGGUO HUANG, DEPT. OF CROP AND SOIL SCIENCES** - DoD SERDP. PI Huang. “Remediation of Perfluoroalkyl Contaminated Aquifer using an In-Situ Two-Layer Barrier: Laboratory Batch and Column Study.”

- EPA STAR, PI Huang, Co-PI Black, Pan. “Environmental Behaviors of Solubilized Carbon Nanotubes in Aquatic Systems: Transformation, Sorption, and Toxicity Exposure.”

**LUKE NAEHER, DEPT. OF ENVIRONMENTAL HEALTH SCIENCE** - Centers for Disease Control and Prevention (CDC), Inter-Professional Agreement (IPA), 11IPA1103874. Naeher (Co-PI) (Pilot Project for Doctoral Candidate Adwoa Agyepong student PI). “Environmental epidemiology and exposure assessment - indoor air pollution and biomass exposure.”

- CDC/NIOSH ERC, Deep South Center for Occupational Health & Safety, 2T42OH008436. Naeher (PI). “Characterization of Pneumotoxicity in Wildland Firefighters.”

- NIEHS, 1R21ES017845-01A1. Steenland (PI)/Naeher (Co-PI). “Biomarkers of Exposure to and Health Effects from SHS in Outdoor Smoking Areas.”

- NIH, Fogarty International Center, 5D43TW005746-10. “International Training and Research in Environmental and Occupational Health (Peru).”

**RON RILEY, USDA-ARS** - National Institute of Health (1RC4HD067971-01). project specifically addresses the possible role of fungal toxins in birth defects worldwide but particularly in countries where corn is consumed in large amounts and is likely to be contaminated with the fungal toxin fumonisin B1 (FB1).

**STEVE STICE, DEPT OF ANIMAL AND DAIRY SCIENCE**, - DoD BAA grant on Neural stem cells as biosensors.

**RALPH A. TRIPP** - 1 R01 AI070847-07A2 (PI, Biao He). NIH/ NIAID. Title: “Developing a Paramyxovirus-based H5N1 Vaccine” Develop a PIV5-based influenza virus vectored vaccine. 6/01/09 – 06/24/13

- 1 U01 AI083005-01 (PI, Andrew Mellor) NIH/NIAID. Title: “Manipulating natural host immunoregulation via IDO during viral infection” Investigate the mechanisms of natural immunoregulation during influenza viral infection centered around the immunosuppressive enzyme indoleamine-2,3-dioxygenase (IDO). 03/01/09 – 07/31/14

- NIAID0DMID-07-20: (Director: Walter Orenstein)NIH/NIAID. Title: “NIAID Center of Excellence for Influenza Research and Surveillance” Provide a nationwide resource in defense against influenza virus. Co-Director of this NIAID Center. 03/30/07 – 03/29/14

- R01 AI088744-01-01 (PI, Ralph A. Tripp). NIH/ NIAID. Title: “RSV Nanocapsule Vaccine Engineered with a G Protein Peptide Payload” Develop a safe and effective RSV vaccine. 04/01/2010 – 03/31/2015

- OPP1036030 Phase 1a (PI, Ralph Tripp) Gates Foundation. Title: “Developing Enhanced Vaccine Cell Lines” Eradicate poliovirus by providing cost-effective, safe and efficacious poliovirus vaccine. 05/01/2011 – 08/30/2012

- W911NF-11-2-0010 (PI, Ralph A. Tripp) U.S. Army Research Office. Title: “Nanophotonic Biosensor Detection of Bioagents and Pathogens” The major goal of this grant is the use of SERS for the direct detection of viral and bacterial pathogens, as well as miRNA biomarkers of disease. Specific aims of this project include: i) improving sensitivity and reduced assay time, including microfluidics development, and ii) the evaluation of portable handheld analyzers. The proposed biological targets included orthopoxviruses, Mycoplasma, tuberculosis, and miRNA’s. 01/05/2011 – 01/04/2013

**XIAOQIN YE, DEPT OF PHYSIOLOGY AND PHARMACOLOGY** - NIH R15HD066301 09/01/2010 – 08/31/2013

# STUDENT AWARDS

## CONGRATULATIONS TO THIS YEARS' AWARD WINNERS

### **KWAKU AGYEKUM - Advisor: Mary Alice Smith**

2012 Outstanding Poster Award, Center for Food Safety.

Poster of Distinction, Meeting for the European Society for Pediatric Gastroenterology, Hepatology, and Nutrition. Lactobacillus rhamnosus GG and soluble factors thereof are protective against Cronobacter sakazakii invasion and related mortality in neonatal mice. G. Gross, A. K. Agyekum, K.M. Overkamp, E.A.F van Tol, M.A. Smith.

### **ADWOA COMMODORE - Advisor: Luke Naeher**

2011 Deep South Center OH&S Symposium Grant from NIOSH through the University of Alabama.

### **PETER HAZELTON - Advisor: Robert Bringolf**

“1st Runner-up for Best Student Presentation” at the 2012 Southeastern SETAC Annual Meeting.

2012 Recipient of UGA Career Center Intern-For-A-Day Internship with U.S. EPA Region 4, Athens, GA.

Awarded Doctoral Candidacy from UGA Graduate School, November, 2011 after successful completion of preliminary exams and coursework. 2011 SETAC Student Travel Award and Registration Waiver. 2011 UGA Graduate School Travel Award. 2012 Dissertation Completion Award.

### **JOE IBURG - Advisor: Raymond Noblet**

Mike Spironello Award for Outstanding Student Presentation. 2011. At the 9th annual meeting of the North American Black Fly Association

Honorable mention at the 78th Annual Meeting for the American Mosquito Association- \$500.00 prize

### **SHUO XIAO - Advisor: Xiaoqin Ye**

2011 Larry Ewing Memorial Trainee Travel Fund Award (LEMTTF) in 44th Study of Reproduction (SSR) Annual Meeting, Portland, Oregon. 2012 Dissertation Completion Award.

## **ITP ANNUAL RETREAT PLATFORM WINNERS:**

**1ST: FEI ZHAO.** Peripubertal Exposure to Dietary Zearalenone Advances Puberty and Prevents Embryo Implantation. Fei Zhao and **Advisor Xiaoqin Ye.**

**2ND: EMILY ROBERTS.** Comparison of multi-walled carbon nanotube chronic toxicity and bioaccumulation in two crustaceans: freshwater and estuarine. Emily R. Roberts and **Advisor Marsha C. Black.**

## **ITP ANNUAL RETREAT POSTER WINNERS:**

**1ST: CORY GRESHAM.** Mutagen-Exposed Germ-Cells Transmit Mutations to Unexposed DNA of Offspring: A New Mechanism of Germ-Cell Mutagenesis. With Michelle Norris, Leanne Alworth and **Advisor Richard Winn.**

**2ND: SHUO XIAO.** Bafilomycin A1, a V-ATPase Inhibitor, inhibits Embryo Implantation via Local Uterine Fat Pad Injection. With Honglu Diao, and **Advisor Xiaoqin Ye.**

**3RD: ADWOA COMMODORE.** Carbon Monoxide Exposures and Kitchen Concentrations from Cookstove Related Woodsmoke in the Indoor Environment in San Marcos, Peru. With Stella M. Hartinger, Claudio F. Lanata Daniel Mäusezahl, Ani I. Gil, Daniel B. Hall, Manuel Aguilar-Villalobos, Corey J. Butler and **Advisor Luke P. Naeher.**

**3RD: NATALIE SCHOLPA.** Epigenetic Changes in p21 Expression in Rat Kidney after Exposure to Bromate. With X. Zhang, N. Kolisetty, R.J. Bull, J. Fisher, J. A. Cotruvo, D. Delker and **Advisor B. S. Cummings.**

# ITP SPRING RETREAT 2012

## STUDENT PRESENTATIONS

**KWAKU AGYEKUM** Probiotic Inhibition of Bacterial Pathogen Growth In vivo and In vitro. With Rahat Desai, Kendra Edwards and **Advisor Mary Alice Smith.**

**JOHN FINGER** Innate immunity in the American alligator, *Alligator mississippiensis*: toxicant and viral immunomodulation. Enthusiasts of Diversity, Genetics and Evolution. With **Advisor T. R. Glenn.**

**PETER HAZELTON** Effects of Agricultural and Industrially Contaminated Sediment on Freshwater Mussels. With **Advisor Robert Bringolf.**

**KRISTEN KELLOCK** Survey of intersex fish and estrogenic potency of Georgia waters. With Brittany Trushel, Patrick Ely, Cecil Jennings and **Advisor Robert B. Bringolf.**

**MADHU MATHILAKATH KERALAPURATH** Persisting Effects of Intermittent, Minor Stressors On Long-Term Potentiation in the CA1 region of Dorsal and Ventral Hippocampal Slices. With J. K. Clark, S. Hammond, and **Advisor J. J. Wagner.**

**NARENDRABABU KOLISSETTY** Bromate Increases 3-Bromotyrosine Expression in Male Rat Kidneys. With Jeremy D. Casper; Srinivasa Muralidhara; Guo X. Zhongxian; Richard J. Bull; Joseph A. Cotruvo; Jeff W. Fisher; Richard C. Zangar and **Advisor Brian S. Cummings.**

**RONG LI** Effects of Post-weaning Genistein Exposure on Uterine Development and Spermatogenesis. With Honglu Diao, Shuo Xiao, Fei Zhao and **Advisor Xiaoqin Ye.**

**ZHOUMENG LIN** Behavioral and neurochemical alterations caused by a short-term exposure of male C57BL/6 mice to the herbicide atrazine. With Dodd, C.A., and **Advisor Nick Filipov.**

**LIYUN LIU** PCR Screening for the Signaling Pathways Involved in BoNT/A Induced Neurite Outgrowth. With **Advisor Julie Coffield.**

**NICK MOORE** Efficacy of Alkaline Cooking (Nixtamalization) to Reduce in vivo Toxicity of Fumonisin. With **Advisor K.A. Voss.**

**MANDANA NISANIAN** Sub-Acute Effects of Oral Lead Acetate on Blood Parameters and GI Microbial Antibiotic Resistance in Juvenile White Leghorns. With R. Kerr, E.K. Belgin, S.D. Holladay, C. Tuckfield, J.V. McArthur, S. Williams, L. Stabler and **Advisor R.M. Gogal Jr.**

**GUOQING QIAN** Biomarker Kinetics of Serum Aflatoxin B1 -lysine Adduct and Immune Toxicity of Aflatoxin B1 in F344 Rats. With Lili Tang, Franklin Wang, Xia Guo, Shuhan Lin, Zhendong Yang, Jianjia Su, and **Advisor Jia-Sheng Wang.**

**PANKAJ SETHI** Plasma Protein Binding of Pyrethroid Insecticides. With S. Muralidhara, T.G. Osmitz, **Advisor J.V. Bruckner,** C.A. White, D. Minnema, N. Assaf, W. Schmitt, S. Anand, and D. Gammon.

**SHUO XIAO** Bafilomycin A1, a V-ATPase Inhibitor, inhibits Embryo Implantation via Local Uterine Fat Pad Injection. With Honglu Diao and **Advisor Xiaoqin Ye.**

# STUDENT RESEARCH

## LOCAL

### **GEORGIA LOCAL SECTION, AMERICAN INDUSTRIAL HYGIENE ASSOCIATION (AIHA)**

Adwoa Commodore Characterization of Household Air Pollution from Cookstove Related Woodsmoke in San Marcos, Peru

### **2012 ANNUAL MEETING OF THE GEORGIA CHAPTER OF THE AMERICAN FISHERIES SOCIETY (GAAFS), MACON, GA.**

Pete Hazelton Effects of agricultural and industrially contaminated sediments on freshwater mussels. Hazelton, PD, RB Bringolf, ML Urich, PJ Lasier.

Kristen Kellock Intersex fish influenced by factors other than municipal wastewater effluent. Kellock KA, Trushel BE, Ely PC, Jennings CA and Bringolf RB.

### **THE 34TH ANNUAL GEORGIA MOSQUITO CONTROL ASSOC. ATHENS, GA.**

Joe Iburg The Impact of Seston on Black Fly Susceptibility to Bti. Iburg J.P., Gray E.W., Noblet R., Wyatt R.D. 2011.

### **2011 GEORGIA WATER RESOURCES CONFERENCE. ATHENS, GA.**

Kristen Kellock Assessment of intersex fish and estrogenic potency of waters in Georgia. Kellock KA and Bringolf RB.

### **2012 UGA CENTER FOR FOOD SAFETY (CFS) ANNUAL MEETING, ATLANTA, GA**

Qian Guoqing Validation of a Non-antibody Method for Detection of Serum Aflatoxin B1-lysine Adduct in Fischer 344 Rats. Guoqing Qian, Lily Tang, Xia Guo, Franklin Wang, Michael Massey, Jianjia Su and Jia-Sheng Wang.

## REGIONAL

### **2012 ANNUAL REGIONAL MEETING OF THE SOUTHEASTERN REGION OF THE SOCIETY OF ENVIRONMENTAL TOXICOLOGY AND CHEMISTRY (SESETAC). PENSACOLA, FL.**

Kristen Kellock Intersex Bass: not just in wastewater anymore. Kellock KA, Trushel BE, Ely PC, Jennings CA and Bringolf RB.

### **2011 ANNUAL MEETING OF THE SOUTHEASTERN SOCIETY OF TOXICOLOGY. ATLANTA, GA.**

Zhoumeng Lin Disruption of motor and cognitive behaviors and alteration of monoamines in the striatum and prefrontal cortex of male C57BL/6 mice by a short-term exposure to the herbicide atrazine. Lin, Z., Dodd, C.A., Filipov, N.M.

## NATIONAL

### **FRESHWATER MOLLUSK CONSERVATION SOCIETY 2012 WORKSHOP, ATHENS, GA.**

Pete Hazelton Freshwater mussel growth and survival in sediments influenced by agricultural and industrial land use. Hazelton, PD, PJ Lasier, ML Urich, JW Washington, & RB Bringolf.

# STUDENT RESEARCH

## **THE SOCIETY OF TERATOLOGY, BALTIMORE, MD.**

Kwaku Agyekum      Mechanisms of Probiotic-Induced Growth Inhibition of *Listeria monocytogenes*  
A. Kwaku Agyekum, R. Desai, K. Edwards, and M. A. Smith.

## **AMERICAN MEETING OF THE SOCIETY FOR ENVIRONMENTAL TOXICOLOGY & CHEMISTRY, BOSTON, MA.**

Pete Hazelton      Freshwater mussel growth and survival in sediments influenced by agricultural and industrial land use. Hazelton, PD, PJ Lasier, ML Urich, JW Washington, & RB Bringolf.

## **SOCIETY OF TOXICOLOGY 2012 ANNUAL MEETING, SAN FRANCISCO, CA.**

Natalie Scholpa      Epigenetic changes in p21 expression in rat kidney after exposure to bromate. N.E. Scholpa, X. Zhang, N. Kolisetty, R.J. Bull, J. Fisher, J.A. Coturvo, D. Delker, B. Cummings.

Qian Guoqing      Effects of Aflatoxin B1 on the Immune Phenotypes and Cytokine Secretions of Spleen Lymphocytes in Fischer 344 Rats. Guoqing Qian, Lili Tang, Xia Guo, Franklin Wang, Michael Massey, Jianjia Su and Jia-Sheng Wang.

## **ANNUAL MEETING OF THE AMERICAN MOSQUITO CONTROL ASSOCIATION. AUSTIN, TX.**

Joe Iburg      The effect of seston on the susceptibility of black fly larvae to Bti. Iburg J.P. 2012.

## **INTERNATIONAL**

## **INTERNATIONAL CONFERENCE ON EMERGING INFECTIOUS DISEASES, ATLANTA, GA,**

John Finger      Finger, J.W. Jr., B.L. Temple, C.A. Jones, T. Jelesijevic, E.W. Uhl, R.J. Hogan, T.C. Glenn, and S.M. Tompkins. Susceptibility of American Alligators to Avian and Human Influenza.

## **2011 INTERNATIONAL MEETING OF THE SOCIETY OF ENVIRONMENTAL TOXICOLOGY AND CHEMISTRY (SETAC). BOSTON, MA.**

Kristen Kellock      Intersex fish influenced by factors other than municipal wastewater effluent. Kellock KA, Trushel BE, Ely PC, Jennings CA and Bringolf RB.

## **MEETING FOR THE EUROPEAN SOCIETY FOR PEDIATRIC GASTROENTEROLOGY, HEPATOLOGY, AND NUTRITION**

Kwaku Agyekum      *Lactobacillus rhamnosus* GG and soluble factors thereof are protective against *Cronobacter sakazakii* invasion and mortality in neonatal mice. G. Gross, A. K. Agyekum, K.M. Overkamp, E.A.F van Tol, M.A. Smith.

## **4TH INTERNATIONAL WORKSHOP ON CROCODILIAN GENETICS AND GENOMICS. DARWIN, AUSTRALIA. MAY 2012.**

John Finger      Immunity in crocodilians: androgen and viral immunomodulation. Finger, J.W. Jr., S.R. Isberg, C. Moran, T.C. Glenn, C.A. Jones, and S.M. Tompkins.

# 2011 - 2012 GRADUATES

## WHERE ARE THEY GOING NEXT?

**SHIRLEY ZHANG** (PhD 2011) I am currently a postdoctoral fellow in the Duke University Medical Center in Raleigh-Durham, NC.

**GIDEON ST. HELEN** (PhD 2011) I am currently a postdoctoral fellow at the Center for Tobacco Control Research and Education at the University of California, San Francisco.

My studies are focused on: 1. Exposure assessment of smokers to tobacco carcinogens, and 2. Racial differences in the relationship between nicotine dependence and nicotine intake and carcinogen exposure.

**FEMI ADETONA** (PhD 2011) I started as a postdoctoral research associate at the Naeher lab here at the Department of Environmental Health Science in September 2011.

**CONGRATULATIONS!!!**

# ALUMNI UPDATES

## WHAT ARE THEY DOING NOW?

**XIANGLU HAN**, (MS 2004) **Advisor: Luke Naeher.** I studied at the University of Rochester for a PhD degree in toxicology. I have been working as a postdoc in risk assessment at Dow Chemical since 2010. My research focuses on risk assessment of mixtures. List of publications in 2011 to 2012 based on Rochester and Dow work as follows:

\* Han X, Corson N, Wade-Mercer P, Gelein R, Jiang J, Sahu M, Biswas P, Finkelstein JN, Elder A, Oberdörster G. Assessing the Relevance of in vitro Studies in Nanotoxicology by Examining the Correlations between in vitro and in vivo Data. *Toxicology*. 2012; <http://www.sciencedirect.com/science/article/pii/S0300483X12000935?v=s5>

\* Han X, Price PS. Determining the maximum cumulative ratios for mixtures observed in ground water wells used as drinking water supplies in the United States. *Int. J. Environ. Res. Public Health*. 2011; 8: 4729-4745

\* Price PS, Han X. Maximum Cumulative Ratio (MCR) as a Tool for Assessing the Value of Performing a Cumulative Risk Assessment. *Int. J. Environ. Res. Public Health*. 2011; 8: 2212-2225 (Among the top 10 best papers advancing the science of risk assessment rated by the Risk Assessment Specialty Section of the Society of Toxicology in 2012 annual meeting in San Francisco, CA).

\* Han X, Gelein R, Corson N, Wade-Mercer P, Jiang J, Biswas P, Finkelstein JN, Elder A, Oberdörster G. Validation of an LDH assay for assessing nanoparticle toxicity. *Toxicology*. 2011; 287: 99-104 (Among top 10 most downloaded papers of the journal).



# TOXICOLOGY SNAPSHOTS



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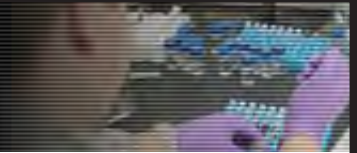
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*Thank you!!*

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<http://www.toxicology.uga.edu>.

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## INTERDISCIPLINARY TOXICOLOGY PROGRAM ALUMNI

1997 Kelley Ann Boyle Van Vreede, M.S.	2002 continued: Michael Harrison Lumpkin, Ph.D. Jay Paul Overmyer, Ph.D. Sarah Suzanne Rentz, M.S. Patricia Lynn Shaw-Allen, Ph.D. Lonnie Dwayne Williams, M.S.	2004 continued: Angel K. Wall, M.S. Neera Chhabra Young, M.S.	2008 Brooks McPhail, Ph.D. Tantiana Donata Burns, Ph.D. Curtis Andrew Harris, Ph.D. Elizabeth Irvin, Ph.D. Lakshmi Kelamangalath, Ph.D. Michelle Warner Norris, M.S. Junshun Qiu, Ph.D. David Robert Rouse, M.S. Matthew Aaron Taylor, Ph.D. William Shoults-Wilson, Ph.D.
1998 Ilho Cho, M.S. Nikolay Miltchev Filipov, Ph.D. Slawomir Jacek Rzucidlo, Ph.D. Daniel John Schoeffner, Ph.D. Jeannie Lee Stephenson, M.S. Masashi Tsunoda, Ph.D. Robert Wesley Wentworth, Ph.D.	2003 Jason Lamar Boyd, Ph.D. Russell David Cole, M.S. James Claude Cumbee Jr., M.S. Shashank Dravid, Ph.D. Kristi Manning Folden, M.S. Sang Hyun Kim, Ph.D. Audrey Jean Majeske, M.S. Bradley David Reinhart, M.S.	2005 Kathy Dietzel, M.S. Ryan Richard Holem, M.S. Catherine J King, M.S. Brad Konwick, M.S. Gregory N Quinn, M.S. Tonia Marie Parrott, Ph.D. Jennifer Hoffman Peterson, M.S. Neelesh Sharma, Ph.D.	2009 Susan Baird, M.S. Suzy Ritger Crowell, Ph.D. Hongbo Ma, Ph.D. Leenal Malayil, M.S.
1999 Judy S. Mathew, M.S. Christopher Lee Peredney, M.S. Karen Marie Zepp, M.S.	2004 Tara Lynn Almekinder, M.S. Heather A Brant, M.S. Jerry Lamar Campbell Jr., Ph.D. Deanna Erin Conners, Ph.D. Amy Dixon Delinsky, Ph.D. Amber Lynn Graves, M.S. Xianglu Han, M.S. Quanren He, Ph.D. Jiyoung Kim, Ph.D. Elizabeth Ann Richardson, M.S. Emily Dawn Rogers, M.S. Olga Vasylivna Tsyusko, Ph.D. Jason M. Unrine, Ph.D.	2006 William Matthew Henderson, Ph.D. Carey C Hines, Ph.D. Molly Catherine Visser, M.S. Denita Williams, M.S. Lonnie Dwayne Williams, Ph.D.	2010 Ghanashyam Joshi, M.S. Suyang Liu, M.S. Sheppard Martin, Ph.D. Arena Richardson, Ph.D. Bin Sun, Ph.D. Denita Williams, Ph.D. Li Xu, Ph.D.
2000 Beverly Schleppei Arnold-Hall, Ph.D. Kevin Anthony Holloman, Ph.D. Carrie Hamilton Marr, M.S.		2007 Elizabeth Irvin, Ph.D. Deborah Iwanowicz, Ph.D. Kristen Kellock, M.S. Kyu-Bong Kim, Ph.D. Sookwang Lee, Ph.D. Paul Melstrom, Ph.D. Brianna Peterson, Ph.D. Glenn Tillman, M.S. Aswani Vunnava, M.S.	2011 Olorunfemi Adetona, Ph.D. Gideon St. Helen, Ph.D. Shirley Zhang, Ph.D.
2001 Taras K. Oleksyk, Ph.D. Suparna Ajoy Sarkar, Ph.D.			
2002 Windy Ann Boyd, Ph.D. Gregory Patrick Dooley, M.S. Neera Vintra Gopee, Ph.D. Ofia B. Hodoh, M.S. Vic Johnson, Ph.D.			



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